is able to pursue a logical trend of thought within the limits of the material under consideration.

Given this approach to the teaching of physics, the next important point is the selection of the material to be presented. The choice must, it seems, be guided by two independent considerations: the mathematical background of the student, and the importance of the material in relation to other fields.

The mathematical background of the average college student is rather limited, which in itself limits the scope of the material to be presented. Fortunately, however, and in the words of Albert Einstein and Leopold Infeld,[4] "most fundamental ideas of science are essentially simple and may, as a result, be expressed in a language comprehensible to everyone. So long as we are concerned with fundamental ideas, we may avoid the language of mathematics. The price which has to be paid for abandoning the language of mathematics is a loss in precision and the necessity of quoting results without showing how they were reached." For instance, some fundamental formulae derived by Einstein can be understood without mathematical background, while to follow their mathematical development demands considerable knowledge of mathematics.

In other words, the material to be presented to the student can cover all the fundamental ideas and principles of physics whose final formulation can be expressed in simple mathematical language. But this material is rather extensive and the problem of its presentation becomes a very difficult one.

Since the main object of teaching physics falls into two categories — training in logical thinking, and correlation of data obtained in one field with data obtained in other fields — any part of the material has to be presented with the two goals in mind. The first can be achieved by emphasizing the step-by-step process and the second by taking the fundamental results and correlating them with social science, literature, etc.

For example, notions such as the kinetic theory of gases (introducing the importance of probability), entropy (pointing out the role of dissymetry), the law of gravitation, etc., are particularly suitable for general interpretation. It is, however, important to point out that physical laws do not explain — they demonstrate.

Each branch of physics can be explored from the dual point of view — rigorous analysis and synthesis, and relationship to the branches of different areas of human activities.

If contemporary thought is to be dominated by the notions of universality, of the interpenetration of highly complex fields, and of the scientific approach to the exploration of the phenomenon — man — then scientific training such as I have described should be highly valuable, indeed almost essential, to all students, whether they are destined to become artists, businessmen, farmers, housewives, or scientists.

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1 James B Conant: 'On Understanding of Science"—American Scientist (1947) p 33
2 Erwin Schrodinger: WHAT IS LIFE?—MacMillan 1947 p 3
3 Norbert Wiener: CYBERNETICS—Wiley 1948
4 Alfred Einstein and Leopold Infeld: THE EVOLUTION OF PHYSICS—Simon and Schuster 1942 p 29